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- (b) What is cloud storage ? Discuss cloud storage architecture with diagram.
9. (a) How rules are interpreted in deductive database ? Also discuss the datalog program and their safety.
- (b) Differentiate functional and procedural models of big data with their merits and usage.

**MCA 3rd Semester (Current) CBCS Scheme**

**w.e.f. 2017-18 Examination,**

**November/December-2019**

**ADVANCE DATABASE SYSTEMS**

**Paper-17MCA33C3**

*Time allowed : 3 hours]*

*[Maximum marks : 80*

*Note : Attempt five questions in all. Question No. 1 is compulsory. In addition to compulsory question, attempt four more questions selecting one from each unit.*

**1. Compulsory Question :**

- (a) What is type inheritance ? How does superclass/subclass relationship exemplify type inheritance?
- (b) What primary characteristics should an Object Identifier possess ?
- (c) How multi-valued attributes are represented in ORDBMS ?
- (d) How DSS is different from transaction processing system ?
- (e) What is I/O parallelism ? Name the partitioning techniques used for it.
- (f) Name the factors that do not appear in centralized systems that affect concurrency control and recovery in distributed systems.

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- (g) How the delete and update commands would be implemented on valid time and bitemporal relations ?
- (h) What is Big data ? Discuss it in terms of volume and velocity.

**Unit-I**

- 2. (a) Discuss various constraints applied on specialization and generalization. Also discuss how multiple inheritance can be achieved in case of specialization.
- (b) Differentiate between structured and unstructured complex objects . Also discuss reference semantics exist between a complex object and its components at each level.
- 3. (a) What is the difference between persistent and transient objects ? How is persistency handled in OODBMS ?
- (b) How does a category differ from regular shared subclass ? What is a category used for ? Illustrate the answer with example.

**Unit-II**

- 4. (a) How constructor, typed view, recursion and inheritance are specified in ORDBMS ?

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- (b) How effectiveness of information retrieval is measured ? Discuss the metrics for measuring retrieval effectiveness.
- 5. (a) How query is processed and optimized in ORDBMS ? Give an example also.
- (b) What are different schema architectures for multidimensional data models ? Discuss with diagrammatic notation.

**Unit-III**

- 6. (a) What is intraoperation parallelism ? How parallelism can be increased with intraoperation parallelism ?
- (b) What are various design issues related to DDBMS? Discuss their usage also.
- 7. (a) How server provides transaction services to client? Illustrate with diagrammatical notation.
- (b) How concurrency control is achieved in distributed database ?

**Unit-IV**

- 8. (a) How time is incorporated using tuple versioning and attributes versioning in temporal database ?

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